

REMARKS/ARGUMENTS

Status of Claims

Claims 1-49 remain in the application. Applicant gratefully acknowledges allowance of claims 25, 45 and 46.

35 U.S.C 103 Claim Rejections

The Examiner has rejected claims 1-11, 13-23, 27-43 and 47 under 35 U.S.C. 103(a) as being unpatentable over Agrawal (U.S. Patent Publication No. 2004/0024901) in view of Fujino (U.S. Patent No. 6,085,222).

With regard to claim 1, the Examiner continues to allege that Agrawal discloses “a network node adapted to forward a data packet to a mobile host connected to a radio node by performing a remote method invocation with the data packet as an argument”.

The Examiner has not found Applicant’s argument persuasive in the Office Action response dated October 13, 2004 that a remote method invocation is not the same as “forwarding/delivering a packet”. The Examiner stating in the Response to Argument’s section on page 20 of the Office Action that “forwarding of the packets to and from the home and mobility agents corresponds to a remote method invocation” is not a suitable rebuttal to the Applicant’s comparison to what is disclosed by Agrawal and what is described in the present application and recited in the claims to support the Examiner’s position of why they are comparable. With respect, the Examiner has not provided any substantiation whatsoever to this equivalence.

Applicant maintains that a remote method invocation is not the same as “forwarding/delivering a packet”. Applicant submits that the preamble of claim 1 recites the network node is adapted to forward a data packet to a mobile host and the “performing a remote method invocation” is the manner of how the data packet is forwarded. The Examiner has not addressed Applicant’s described differences between how the network node forwards the data packet by remotely invoking a method of the relocatable object associated with the mobile node

to receive the packet and the method of forwarding a message using global and local care-of-addressing as disclosed in Agrawal.

In addition to the mischaracterization of a remote method invocation as simply “forwarding/delivering a packet”, the Examiner suggests that a stationary object of the present application corresponds to “entries in the table of the home agent 212” and a relocatable object of the present application corresponds to “entries in the table of the mobility agent 242”. As described in the subject application at page 10, line 3, “in object oriented systems, an object is an independent software unit. Each object has some properties (or attributes) and some operations (or methods) associated with it. An object exposes its functionalities through its methods”. Thus, contrary to the Examiner’s assertion, the stationary and relocatable objects are more than just entries in tables for redirecting messages based on associations with a home address of a mobile node and a care-of-address of where the mobile node is currently located.

The Examiner concedes that Agrawal does not disclose “the network node being further adapted to be part of a distributed object framework which comprises a set of distributed objects, comprising attributes and methods”. However, it is alleged that Fujino does disclose such a feature. The Examiner states it would have been obvious “to modify Agrawal’s apparatus to utilize a system where the network node being further adapted to be part of a distributed object framework, as taught by Fujino” to provide a more integrated and efficient system that will require less signaling and maintain consistency in the interworking functions, thereby increasing route optimization.

It is submitted that Agrawal alone does not disclose all the features relied upon in claim 1 to render claim 1 obvious for at least the reasons described above. In addition, Fujino does not disclose “performing a remote method invocation with the data packet as an argument”. Applicant submits that the Examiner has failed to satisfy a first criterion for establishing a prima facie case of obviousness, namely that the cited references of Agrawal and Fujino, either alone or in combination, teach all the features of claim 1.

Furthermore, Applicant submits that modifying the apparatus of Agrawal to operate in a manner consistent with Fujino would change the principle of operation of Agrawal. A substantial redesign of the entire system of Agrawal would be required for the home agent 212

and the other network elements of Agrawal to operate in a similar manner as the distributed object environment of Fujino because the distributed object environment of Fujino is fundamentally different than the system of Agrawal. Agrawal uses a table of entries with associated addresses for forwarding packets to a final destination. Each network node along the way, including the home agent 212, the mobility agent 242, and the subnet agent 244 must redirect the message along to a next node on route to the final destination. Therefore, to be effective in operating within the system described by Fujino, each of the mobility agent 242, the subnet agent 244 and the mobile node 246 would likewise need to be redesigned accordingly to operate in co-operation with the modified home agent 212 of Agrawal. The differences in the operation of the system of Agrawal and the distributed object environment of Fujino suggest that by modifying the apparatus of Agrawal one would be teaching away from the basic operation of Agrawal. Therefore, Applicant submits that the Examiner has failed to satisfy a second criterion for establishing a prima facie case of obviousness, namely that there be motivation to combine the references. As modification to the Agrawal apparatus based on Fujino would result in a fundamental change to operation of the Agrawal system, and in fact would result in teaching away from the principle of operation of the apparatus of Agrawal, there is no proper motivation to combine the references.

For the above reasons it is submitted a prima facie case of obviousness has not been established. As claim 1 patentably distinguishes over the combination of Agrawal and Fujino, either alone or in combination, it is respectfully requested that the Examiner reconsider and withdraw the rejection of claim 1.

The Examiner states that Agrawal discloses all the features as recited in claim 2 of the present application. Claim 2 is dependent upon claim 1 and recites additional limitations of the network node. What is being recited in claim 2 is not what is disclosed by Agrawal. Claim 2 recites that the stationary and relocatable objects comprise “attributes and methods”. As mentioned above, the Examiner states a stationary object of the present application corresponds to “entries in the table of the home agent 212” and a relocatable object of the present application corresponds to “entries in the table of the mobility agent 242”. Entries in a table to associate the mobile node address and its care-of-address are not attributes and methods. It is the method of

the relocatable object associated with the mobile host that is remotely invoked through the distributed network that allows the packet to be forwarded in the present application.

Agrawal does not disclose all the features that are recited in claim 2. Fujino also does not disclose all the features of claim 2 or at least the features relied upon by the Examiner to be disclosed by Agrawal. Applicant submits that the Examiner has failed to satisfy the first criterion for establishing a prima facie case of obviousness, namely that the cited references of Agrawal and Fujino, either alone or in combination, teach all the features of claim 2. As such, it is respectfully requested that the Examiner reconsider and withdraw the rejection of claim 2.

The Examiner states that Agrawal discloses all the features as recited in claim 3 of the present application. The filter recited in claim 3 is used to identify packets having a destination address belonging to the mobile host and then send them to the stationary object associated with the external host. Claim 3 is dependent upon claim 2, which as described above patentably distinguishes over Agrawal and Fujino, either alone or in combination. Since Agrawal and Fujino do not disclose all the features of claim 2 upon which claim 3 depends, the Examiner has not satisfied the first criteria of a prima facie case of obviousness. As such, it is respectfully requested that the Examiner reconsider and withdraw the rejection of claim 3.

Claims 4 and 5 are dependent upon claim 3 and for the same reasons described above with regard to claim 3, it is respectfully requested that the Examiner reconsider and withdraw the rejection of claims 4 and 5.

Claim 6 is dependent upon claim 1 and includes the additional limitation that the network node "is a gateway node of a radio access network, the gateway node having a backbone connection to another network". The Examiner states that while Agrawal does not disclose this feature, Fujino does disclose this feature. However, as Agrawal and Fujino do not alone or in combination disclose all the features of claim 1 as described above, Applicant submits that the Examiner has not satisfied the first criteria of a prima facie case of obviousness. As such, it is respectfully requested that the Examiner reconsider and withdraw the rejection of claim 6.

Claims 7 and 8 are dependent upon claim 6. For the same reasons as described above with regard to claim 6, it is respectfully requested that the Examiner reconsider and withdraw the rejection of claims 7 and 8.

Claims 9 and 13 are dependent upon claim 1. Agrawal and Fujino do not alone or in combination disclose all the features of claim 1 as described above. Applicant submits that the Examiner has not satisfied the first criteria of a prima facie case of obviousness. Therefore, it is respectfully requested that the Examiner reconsider and withdraw the rejection of claims 9 and 13.

Claims 10 and 11 are dependent upon claim 2. For the same reasons described above with regard to claim 2, it is respectfully requested that the Examiner reconsider and withdraw the rejection of claims 10 and 11.

With regard to claims 14 and 39, the Examiner states that Agrawal discloses most of the features of claims 14 and 39, but that Agrawal fails to disclose that the mobile host is in wireless communication with the radio access node. However, it is alleged that Fujino does disclose such a wireless communication and it would have been obvious to modify Agrawal's apparatus to utilize a system where the radio access node is in direct wireless communication with the mobile nodes, as taught by Fujino. The Examiner alleges the motivation to be a more integrated and efficient system requiring less signaling and maintaining consistency in the interworking functions.

Applicant submits that, as described above, the relocated object comprising attributes and methods recited in device claim 14 and method claim 39 is not the same as entries in the table of the mobility agent 242. Since the entries in the table do not contain methods, such as the "remotely invokable receive data packet method", but contain care-of-addresses associated with global address of the mobile node 246, the Examiner has failed to satisfy the first criterion of a prima facie case of obviousness.

Furthermore, in particular with claim 14, Applicant submits that modifying the apparatus of Agrawal to operate in a manner consistent with the system of Fujino would change the principle of operation of Agrawal. As described above with respect to claim 1, a substantial redesign of the entire system of Agrawal would be required for the mobility agent 242 and the other network elements of Agrawal to operate in a similar manner as the distributed object environment of Fujino because the distributed object environment of Fujino is fundamentally different than the system of Agrawal. The differences in the operation of the system of Agrawal

and the distributed object environment of Fujino suggest that by modifying the apparatus of Agrawal one would be teaching away from the basic operation of Agrawal. Therefore, Applicant submits that the Examiner has failed to satisfy the second criterion for establishing a prima facie case of obviousness, namely that there be motivation to combine the references. As modification to the Agrawal apparatus based on Fujino would result in a fundamental change to operation of the Agrawal system, and in fact would result in teaching away from the principle of operation of the apparatus of Agrawal, there is no proper motivation to combine the references.

Therefore, it is respectfully requested that the Examiner reconsider and withdraw the objection to claims 14 and 39.

Claims 15 and 40 are dependent upon claims 14 and 39, respectively. For the same reasons described above with respect to claims 14 and 39, Applicant submits that the Examiner has not established a prima facie case of obviousness. It is respectfully requested that the Examiner reconsider and withdraw the obviousness objection to claims 15 and 40.

Claims 16 to 23 and 27 to 29 are dependent upon claim 14 or intervening claims dependent upon claim 14 and claims 41 to 43 and 47 to 49 are dependent upon claim 39 or intervening claims dependent upon claim 39. For the same reasons as described above with regard to claim 14 and claim 39, Applicant submits that the Examiner has not established a prima facie case of obviousness. It is respectfully requested that the Examiner reconsider and withdraw the obviousness objection to claims 16 to 23, 27 to 29, 41 to 43 and 47 to 49.

Claim 30 is a claim directed to a radio access network. The Examiner alleges that Agrawal discloses most of the features recited in claim 30, except that Agrawal fails to expressly disclose that the network node has the capabilities of a gateway node. For reasons similar to that of claim 6, the Examiner alleges that Fujino does teach this feature and there is motivation to combine the teachings of Agrawal and Fujino. For the same reasons used to refute the Examiner's allegation of claim 6, it is submitted that claim 30 patentably distinguishes over the combination of references.

Furthermore, it is submitted that Agrawal does not disclose "a distributed object framework through which methods on objects comprising attributes and methods located on the different network nodes may be remotely invoked" (emphasis added) as recited in claim 30. The

Examiner seems to concede this fact in stating with regard to claim 1 that the network node does not disclose “the network node being further adapted to be part of a distributed object framework which comprises a set of distributed objects, comprising attributes and methods”. If the Examiner concedes that Agrawal does not disclose the network node (home agent 212) adapted to be connected to such a distributed object framework, then obviously Agrawal cannot disclose a distributed object framework or the network node would not work in Agrawal’s system since the network node is not adapted to work with such a system. Agrawal also does not make use of objects comprising attributes and methods, in particular a “receive packet method” which is also recited in claim 30.

For at least these reasons, it is submitted that Agrawal does not disclose all the features recited in claim 30. Also, Fujino does not disclose or suggest all the features lacking in Agrawal and relied on by the Examiner to be disclosed by Agrawal. Therefore, the Examiner has not satisfied the first criterion for establishing a prima facie case of obviousness, namely that the cited references of Agrawal and Fujino, either alone or in combination, teach all the features of claim 30. Therefore, it is respectfully requested that the Examiner reconsider and withdraw the 35 U.S.C. 103(a) rejection of claim 30.

Claims 31 to 33 are dependent upon claim 30. For the same reasons as described above with regard to claim 30, Applicant submits that the Examiner has not satisfied the first criterion for establishing a prima facie case of obviousness. It is respectfully requested that the Examiner reconsider and withdraw the obviousness objection.

Claim 34 is a claim reciting a method directed to subject matter similar to that of claim 2. As described above, the subject matter of claim 2 patentably distinguishes over the subject matter disclosed by Agrawal and Fujino. It is respectfully requested that the Examiner reconsider and withdraw the rejection of claim 34.

Claims 35 to 38 are dependent upon claim 34 and for the same reasons described above with regard to claim 34, it is respectfully requested that the Examiner reconsider and withdraw the rejection to claims 35 to 38.

The Examiner has rejected claims 6 to 8, 14, 15, 30, 39 and 40 under 35 U.S.C. 103(a) as being unpatentable over Agrawal in view of Ahmed (U.S. Patent No. 6,747,961).

Claim 6 is dependent upon claim 1 and further recites that the network node is “a gateway node of a radio access network, the gateway node having a backbone connection to another network”. The Examiner states that Agrawal fails to disclose the network node is a gateway node having a backbone connection to forward data packets directly to another network. However, the Examiner states that Ahmed discloses a mobility management scheme for a multimedia network where a network node is a gateway node and it would therefore have been obvious to modify Agrawal’s apparatus to utilize a system where the home agent 212 also has the capability to serve as a gateway, as taught by Ahmed. The Examiner alleges the motivation for such a modification is a more integrated and efficient system requiring less signaling and maintaining consistency in the interworking functions.

The Examiner has conceded on page 3 of the Office Action that Agrawal does not teach all the features of claim 1. Ahmed does not disclose or suggest the features lacking in Agrawal and relied on by the Examiner to be disclosed by Agrawal to establish that claim 1 and dependent claim 6 are obvious. As a result the Examiner has not satisfied the first criterion for establishing a prima facie case of obviousness, namely that the cited references of Agrawal and Ahmed, either alone or in combination, teach all the features of claim 6.

It is submitted that for at least the reasons stated above, claim 6 patentably distinguishes over the cited references, either alone or in combination. It is respectfully requested that the Examiner reconsider and withdraw the 35 U.S.C. 103(a) rejection.

Claims 7 and 8 are dependent upon claim 6 and claim 1, respectively. Agrawal and Ahmed do not disclose all the features of claim 1, either alone or in combination, as described above. Therefore, the Examiner has not satisfied the first criterion for establishing a prima facie case of obviousness. It is respectfully requested that the Examiner reconsider and withdraw the rejection of claims 7 and 8.

With regard to claim 14, the Examiner states that Agrawal discloses all the features of claim 14, but that Agrawal fails to disclose that the mobile host is in wireless communication with the radio access node. However, it is alleged that Ahmed does disclose such a wireless communication and it would have been obvious to modify Agrawal’s apparatus to utilize a system where the radio access node is in direct wireless communication with the mobile nodes,

as taught by Ahmed. The Examiner alleges the motivation to be a more integrated and efficient system requiring less signaling and maintaining consistency in the interworking functions.

The radio access node is similar to the network node recited in claims 1 and 2, with regard to the object-oriented nature of the recited relocatable object that is a part of the radio access node and which is associated with the mobile host. Claim 14 recites the relocatable object comprises arguments and methods. An example of such a method is recited as a “receive data packet method”. As described above, methods of an object-oriented nature are not disclosed by Agrawal, and as such data packets are not directed to a mobile node by invoking any type of receive data packet method in a relocatable object. In Agrawal, data packets addressed to the mobile node 246 are first received by the home agent 212. The packets are then redirected to the mobility agent 242 by a transmission initiated by the home agent 212, which is based on an entry in a table associating the destination address with a care-of-address of the mobility agent 242. The data packets are then routed to the mobile node 246 by the mobility agent 242 based on an entry in a table associating the care-of-address with the local address of the mobility node 242.

For similar reasons described above pertaining to claims 1 and 2, it is submitted that Agrawal does not teach all the features of claim 14, in particular, the object-oriented nature of the relocatable object and the use of a remote method invocation. Ahmed does not disclose or suggest the features lacking in Agrawal and relied upon by the Examiner to be disclosed by Agrawal. Therefore, the Examiner has not satisfied the first criterion for establishing a prima facie case of obviousness, namely that the cited references of Agrawal and Ahmed, either alone or in combination, teach all the features of claim 14.

Claim 15 is dependent upon claim 14 and for at least the reasons described above with regard to claim 14, it is respectfully requested that the Examiner reconsider and withdraw the rejection of claim 15.

Claim 39 is a claim reciting a method directed to subject matter similar to that of claim 14. As described above, claim 14 is not obvious with respect to the references of Agrawal and Ahmed, when either cited alone or in combination. Therefore, for the same reasons as described above with respect to claim 14, it is submitted that claim 39 patentably distinguishes

over the cited references. It is respectfully requested that the Examiner reconsider and withdraw the rejection of claim 39.

Claim 40 is dependent upon claim 39 and for at least the reasons described above with regard to claim 39, it is respectfully requested that the Examiner reconsider and withdraw the rejection of claim 40.

Claim 30 is a claim directed to a radio access network. The Examiner alleges that Agrawal discloses all the features recited in claim 30, except that Agrawal fails to expressly disclose that the network node has the capabilities of a gateway node. For reasons similar to that of claim 6, the Examiner alleges that Ahmed does teach this feature and there is motivation to combine the teachings of Agrawal and Ahmed. For the same reasons as used to refute the Examiner's allegation of claim 6, it is submitted that there is insufficient motivation for combining the references.

Furthermore, it is submitted that Agrawal does not disclose "a distributed object framework through which methods on objects comprising attributes and methods located on the different network nodes may be remotely invoked" (emphasis added) as recited in claim 30. The Examiner seems to concede this fact in stating with regard to claim 1 that the network node does not disclose "the network node being further adapted to be part of a distributed object framework which comprises a set of distributed objects, comprising attributes and methods". If the Examiner concedes that Agrawal does not disclose the network node (home agent 212) adapted to be connected to such a distributed object framework, then obviously Agrawal cannot disclose a distributed object framework or the network node would not work in Agrawal's system since the network node is not adapted to work with such a system. Agrawal also does not make use of objects comprising attributes and methods, in particular a "receive packet method" which is also recited in claim 30.

For at least these reasons it is submitted that Agrawal does not disclose all the features recited in claim 30. Ahmed does not disclose or suggest the features lacking in Agrawal and relied on by the Examiner to be disclosed by Agrawal. Therefore, the Examiner has not satisfied the first criterion for establishing a prima facie case of obviousness, namely that the cited references of Agrawal and Ahmed, either alone or in combination, teach all the features of

claim 30. Therefore, it is respectfully requested that the Examiner reconsider and withdraw the 35 U.S.C. 103(a) rejection of claim 30.

The Examiner has rejected claims 12, 24, 26 and 44 under 35 U.S.C. 103(a) as being unpatentable over Agrawal in view of Verma (U.S. Patent No. 6,522,880).

Claim 12 is dependent upon claim 1. Claims 24 and 26 are dependent upon claim 14. Claim 44 is dependent upon claim 39. The Examiner has conceded on page 3 of the Office Action that Agrawal does not disclose all the features of claim 1 and on pages 7 and 16 of the Office Action that Agrawal does not disclose all the features of claims 14 and 39.

Verma does not teach the features conceded by the Examiner not to be taught by Agrawal in claim 1. Therefore, the Examiner has failed to satisfy the first criterion for establishing a prima facie case of obviousness, namely that the cited references of Agrawal and Verma, either alone or in combination, teach all the features of claim 12.

With regard to claims 14 and 39, Agrawal does not disclose all the features relied upon by the Examiner to be taught by Agrawal in claims 14 and 39, as described above. Verma also does not disclose all the features relied upon by the Examiner to be taught by Agrawal in claims 14 and 39. Therefore, the Examiner has failed to satisfy the first criterion for establishing a prima facie case of obviousness, namely that the cited references of Agrawal and Verma, either alone or in combination, teach all the features of claims 12, 24, 26 and 44. However, even if the Examiner were to object to claims 12, 24, 26 and 44 based on obviousness having regard to the combination of Agrawal, Fujino and Verma, or Agrawal, Ahmed and Verma, Applicant provides further arguments below that discuss how claims 12, 24, 26 and 44 patentably distinguish over such combinations.

With regard to claim 12, the Examiner has again failed in this Office Action to provide an appropriate reason why the claim has been rejected. The reasons put forth by the Examiner recite language from claims 24, 26, and 44, but nothing specific to claim 12. Regardless of this fact, claim 12 is dependent upon claim 1, and as described above the combination of Agrawal and Fujino do not disclose all the features recited in claim 1. Therefore, the Examiner has failed to satisfy any of the three requirements for establishing a prima facie case of obviousness, namely that the references must teach or suggest all the features of the claim, there must be motivation

for combining the references, and there must be a reasonable expectation of success. As such it is respectfully requested the Examiner withdraw the rejection of claim 12.

With regard to claims 24, 26, and 44, the Examiner states that Agrawal fails to disclose “the relocatable object is adapted to behave as a proxy for the mobile host for multicast communications” as recited in claims 24 and 44 and “upon the relocatable object’s relocation at a different access node, the relocatable object is adapted to leave the multicast group, and then rejoin from its new location, all transparently to the mobile host” as recited in claim 26. However, the Examiner alleges Verma discloses methods and apparatus for handoff of a connection between network devices that utilize IP multicasting for message transmission to a group. According to the Examiner, it would have been obvious to modify Agrawal’s apparatus to have the capability to support multicast operations, as taught by Verma.

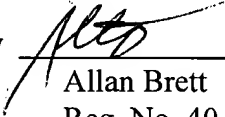
Claim 24 is dependent upon claim 14 and claim 26 is dependent upon claim 24. As described above Agrawal does not disclose all the features of claim 14, either alone or in combination with Fujino or Ahmed. Claim 44 is dependent upon claim 39. As described above, Agrawal does not disclose all the features of claim 39, either alone or in combination with Ahmed. Therefore, neither the combination of Agrawal, Fujino or Verma nor the combination of Agrawal, Ahmed, or Verma teach all the features of claims 24, 26 and 44.

The Examiner has not satisfied a first criterion for establishing a prima facie case of obviousness, namely that the cited references of Agrawal and Verma, either alone or in combination, teach all the features of claims 24, 26 and 44. Nor has the Examiner shown that Agrawal, Verma and either Fujino or Ahmed teach all the features of claims 24, 26 and 44 as would be necessitated due to the claim dependencies involved. Therefore, it is respectfully requested that the Examiner reconsider and withdraw the 35 U.S.C. 103(a) rejection of claims 24, 26 and 44.

In view of the foregoing, early favorable consideration of this application is earnestly solicited.

Respectfully submitted,

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